

What Is Claimed Is:

1 1. A driving circuit for outputting a video signal to
2 control a liquid crystal display panel according to an image
3 control signal provided by a host, the liquid crystal display
4 panel including a plurality of light emitting elements and
5 display cells, the display cells respectively connecting to a
6 plurality of data electrodes and gate electrodes, the driving
7 circuit comprising:

8 a gate driver outputting scan signals to the gate
9 electrodes;

10 a data driver outputting the video signals to the data
11 electrodes according to the image control signal, and

12 a voltage controlling signal corresponding to a
13 brightness adjustment signal; and

14 a driving voltage generator outputting a driving voltage
15 to the light emitting elements according to the
16 voltage controlling signal.

1 2. The driving circuit as claimed in claim 1, wherein the
2 voltage controlling signal comprises a plurality of square waves
3 having periods of high voltage level and low voltage level.

1 3. The driving circuit as claimed in claim 1, wherein the
2 data driver adjusts the ratio between the periods of the high
3 voltage level and the low voltage level according to the
4 brightness adjustment signal.

1 4. The driving circuit as claimed in claim 3, wherein the
2 driving voltage generator comprises:

3 a switch having a control gate receiving the voltage
4 controlling signal and turned on or off according to
5 the voltage level of the voltage controlling signal;
6 an inductor coupled between the switch and a power source;
7 a diode coupled between the switch and the inductor; and
8 a capacitor coupled to the diode, wherein the connection
9 point of the capacitor and the diode outputs the
10 driving voltage.

1 5. The driving circuit as claimed in claim 4, wherein the
2 level of the driving voltage is generated according to the ratio
3 between the periods of the high voltage level and the low voltage
4 level.

1 6. The driving circuit as claimed in claim 1, wherein the
2 light emitting elements comprise a plurality of LEDs connected
3 in serial, parallel, or a combination of both, and a first
4 terminal coupled to the driving voltage generator and a second
5 terminal coupled to the data driver.

1 7. The driving circuit as claimed in claim 6, wherein the
2 data driver adjusts the ratio between the periods of the high
3 voltage level and the low voltage level of the voltage
4 controlling signal according to the voltage level of the second
5 terminal.

1 8. The driving circuit as claimed in claim 1, further
2 comprising a load coupled between the second terminal and
3 ground.

1 9. A driving circuit for outputting a video signal to
2 control a liquid crystal display panel according to an image

3 control signal provided by a host, the liquid crystal display
4 panel including a plurality of light emitting elements and
5 display cells, the display cells respectively connecting to a
6 plurality of data electrodes and gate electrodes, the driving
7 circuit comprising:

8 a gate driver outputting scan signals to the gate
9 electrodes, and a voltage controlling signal
10 corresponding to a brightness adjustment signal;
11 a data driver outputting the video signals to the data
12 electrodes according to the image control signal; and
13 a driving voltage generator outputting a driving voltage
14 to the light emitting elements according to the
15 voltage controlling signal.

1 10. The driving circuit as claimed in claim 9, wherein the
2 voltage controlling signal comprises a plurality of square waves
3 having periods of a high voltage level and a low voltage level.

1 11. The driving circuit as claimed in claim 9, wherein the
2 gate driver adjusts the ratio between the periods of the high
3 voltage level and the low voltage level according to the
4 brightness adjustment signal.

1 12. The driving circuit as claimed in claim 11, wherein
2 the driving voltage generator comprises:

3 a switch having a control gate receiving the voltage
4 controlling signal and turned on or off according to
5 voltage level of the voltage controlling signal;
6 an inductor coupled between the switch and a power source;
7 a diode coupled between the switch and the inductor; and

8 a capacitor coupled to the diode, wherein the connection
9 point of the capacitor and the diode outputs the
10 driving voltage.

1 13. The driving circuit as claimed in claim 12, wherein
2 the level of the driving voltage is generated according to the
3 ratio between the periods of the high voltage level and the low
4 voltage level.

1 14. The driving circuit as claimed in claim 9, wherein the
2 light emitting elements comprise a plurality of LEDs connected
3 in serial, parallel, or a combination of both, and a first
4 terminal coupled to the driving voltage generator and a second
5 terminal coupled to the data driver.

1 15. The driving circuit as claimed in claim 14, wherein
2 the data driver adjusts the ratio between the periods of the high
3 voltage level and the low voltage level of the voltage
4 controlling signal according to the voltage level of the second
5 terminal.

1 16. The driving circuit as claimed in claim 9, further
2 comprising a load coupled between the second terminal and
3 ground.

1 17. A liquid crystal display for displaying images
2 according to an image control signal provided by a host,
3 comprising:

4 a liquid crystal display panel comprising a plurality of
5 display cells respectively connected to a plurality
6 of data electrodes and gate electrodes;

7 a panel driver outputting scan signals to the gate
8 electrodes, the video signals to the data electrodes
9 according to the image control signal, and a voltage
10 controlling signal corresponding to a brightness
11 adjustment signal;
12 a driving voltage generator outputting a driving voltage
13 according to the voltage controlling signal; and
14 a plurality of light emitting elements connected in serial
15 and coupled to the driving voltage generator
16 generating brightness corresponding to the driving
17 voltage output by the driving voltage generator.

1 18. The liquid crystal display as claimed in claim 17,
2 wherein the voltage controlling signal comprises a plurality of
3 square waves having periods of a high voltage level and a low
4 voltage level.

1 19. The liquid crystal display as claimed in claim 17,
2 wherein the panel driver adjusts the ratio between the periods
3 of the high voltage level and the low voltage level according
4 to the brightness adjustment signal.

1 20. The liquid crystal display as claimed in claim 17,
2 wherein the driving voltage generator comprises:
3 a switch having a control gate for receiving the voltage
4 controlling signal and turned on or off according to
5 voltage level of the voltage controlling signal;
6 an inductor coupled between the switch and a power source;
7 a diode coupled between the switch and the inductor; and

8 a capacitor coupled to the diode, wherein the connection
9 point of the capacitor and the diode outputs the
10 driving voltage.

1 21. The liquid crystal display as claimed in claim 20,
2 wherein the level of the driving voltage is generated according
3 to the ratio between the periods of the high voltage level and
4 the low voltage level.

1 22. The liquid crystal display as claimed in claim 17,
2 wherein the light emitting elements comprise a plurality of LEDs
3 connected in serial, parallel, or a combination of both, and a
4 first terminal coupled to the driving voltage generator and a
5 second terminal coupled to the panel driver.

1 23. The liquid crystal display as claimed in claim 22,
2 wherein the panel driver adjusts the ratio between the periods
3 of the high voltage level and the low voltage level of the voltage
4 controlling signal according to the voltage level of the second
5 terminal.

1 24. The liquid crystal display as claimed in claim 23,
2 further comprising a load coupled between the second terminal
3 and ground.